UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 10/710,709 | 07/29/2004 | Padmavathi D. Chukka | FIS920040122US1 | 4708 |

32074 7590 09/09/2005

INTERNATIONAL BUSINESS MACHINES CORPORATION
DEPT. 18G
BLDG. 300-482
2070 ROUTE 52
HOPEWELL JUNCTION, NY 12533

| EXAMINER | |
|---|---|
| JARRETT, RYAN A | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2125 | |

DATE MAILED: 09/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/710,709 | CHUKKA ET AL. | |
| | Examiner | Art Unit | |
| | Ryan A. Jarrett | 2125 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *29 July 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 112*

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 13, 15, 16, and 20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 13 recites the limitation "said set of HCS-Tool Interface" in line 3. There is insufficient antecedent basis for this limitation in the claim.

Claim 15 recites, "said diagnostic program alters at least one command sent to said HCS". It is unclear why a "command" would be sent to the HCS or where the "command" would come from. As best understood, the HCS sends "commands" to the tools; it does not receive "commands". Therefore, it appears as though this limitation should instead recite "said diagnostic program alters at least one command sent to said tool".

Claim 16 recites the limitation "said at least one variation step" in 2. There is insufficient antecedent basis for this limitation in the claim.

Claim 20 recites the limitations "said at least one variation step" in line 1, and "said configurable set of rules" in line 2, and "said one or more parameters" in line 5. There is insufficient antecedent basis for these limitations in the claim.

***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claim 1-5, 7, 8, 11-15, and 17-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Baek et al. US 2003/0004601. Baek et al. discloses:

**1. An article of manufacture in computer readable form comprising means for performing a method for operating a computer system having a host control program (HCS) for controlling at least one tool in a semiconductor fabrication facility, said method comprising the steps of: sending commands to at least one fabrication tool of any compliant tool type that complies with a standard protocol to perform a process in an integrated circuit manufacturing sequence performed on a wafer of integrated circuits, said commands comprising a workflow of workitems, in which each of said workitems has a status flag associated therewith said flag being one of a set of categories including at least enable and disable** (e.g., [0078]: "The operator selects one sequence name among a plurality of the sequence names and combines the SECS messages by specifying and moving the SECS messages required for the selected sequence name to the right message window by means of the drag-and-drop manner", *EN: If the message is dragged-and-dropped by the operator, then the message or workitem "flag" is "enabled"*), **and each of said workitems is in the form of a java class** (e.g., [0087]), **whereby individual ones of**

**said workitems may be enabled or disabled and new workitems may be added to operate on a tool made by any manufacturer that complies with said standard without recompiling or restarting said HCS** (e.g., [0030]: "automatically generating SECS message source....such that coding of a source program for use in controlling equipments may be automatically performed", [0078]).

**2. An article of manufacture according to claim 1, further comprising a step of changing a sequence of workitems in a workflow without recompiling said HCS** (e.g., [0030], [0078], [0097]-[0098]).

**3. An article of manufacture according to claim 1, in which said HCS contains a configurable set of rules that control the gathering of information by said HCS from said tool, further comprising a step of changing a configuration of said set of rules without recompiling said HCS** (e.g., [0031]: "checking, analyzing, controlling, and modifying SECS message communication").

**4. An article of manufacture according to claim 1, in which said method further comprises a setup step for a particular tool, in which data are entered in a template and are automatically converted to workitems in the correct format by said HCS, without further human intervention** (e.g., [0072]-[0074]).

**5. An article of manufacture according to claim 1, in which said method further comprises at least one variation step in which: said HCS alters at least one command sent to said tool, thereby making changes in one or more parameters of said command; said HCS then evaluates the result of said changes and retains changes that improve the performance of said tool** (e.g., [0005]: "Each

of the equipments reports to the host the progressing status and results of each process. The host performs functions such as supervising and managing a series of semiconductor fabricating processes based on the report", [0031]: "checking, analyzing, controlling, and modifying SECS message communication").

7. **An article of manufacture according to claim 5, in which said at least one variation step changes a member of a HCS-Tool Interface** (e.g., [0005]: "Each of the equipments reports to the host the progressing status and results of each process. The host performs functions such as supervising and managing a series of semiconductor fabricating processes based on the report", [0031]: "checking, analyzing, controlling, and modifying SECS message communication").

8. **An article of manufacture according to claim 3, in which said method further comprises at least one variation step in which said HCS alters at least one command sent to said tool, thereby making changes in one or more parameters of said command, said HCS then evaluates the result of said changes and retains changes that improve the performance of said tool** (e.g., [0005]: "Each of the equipments reports to the host the progressing status and results of each process. The host performs functions such as supervising and managing a series of semiconductor fabricating processes based on the report", [0031]: "checking, analyzing, controlling, and modifying SECS message communication").

11. **An article of manufacture according to claim 1, further comprising a diagnostic module in communication with said HCS, in which said diagnostic program receives data from said HCS, evaluates said data and generates at least**

**one modified parameter of said method** (e.g., [0005]: "Each of the equipments reports to the host the progressing status and results of each process. The host performs functions such as supervising and managing a series of semiconductor fabricating processes based on the report"; [0031]: "checking, analyzing, controlling, and modifying SECS message communication").

**12. An article of manufacture according to claim 11, in which said diagnostic program receives data from at least two HCS controlling tools that sequentially process wafers according to a recipe** (e.g., [0005]: "Each of the equipments reports to the host the progressing status and results of each process. The host performs functions such as supervising and managing a series of semiconductor fabricating processes based on the report", [0031]: "checking, analyzing, controlling, and modifying SECS message communication").

**13. An article of manufacture according to claim 11, in which said diagnostic program receives data comprising members of said set of HCS-Tool Interface from at least one HCS** (e.g., [0005]: "Each of the equipments reports to the host the progressing status and results of each process. The host performs functions such as supervising and managing a series of semiconductor fabricating processes based on the report", [0031]: "checking, analyzing, controlling, and modifying SECS message communication").

**14. An article of manufacture according to claim 11, in which said diagnostic program receives data from at least one HCS representing the result of a process applied by a tool controlled by that HCS** (e.g., [0005]: "Each of the equipments

reports to the host the progressing status and results of each process. The host performs functions such as supervising and managing a series of semiconductor fabricating processes based on the report", [0031]: "checking, analyzing, controlling, and modifying SECS message communication").

15. **An article of manufacture according to claim 11, in which said method further comprises at least one variation step in which: said diagnostic program alters at least one command sent to said HCS, thereby making changes in one or more parameters of said command; said diagnostic program then evaluates the result of said changes and retains changes that improve the performance of said tool** (e.g., [0005]: "Each of the equipments reports to the host the progressing status and results of each process. The host performs functions such as supervising and managing a series of semiconductor fabricating processes based on the report", [0031]: "checking, analyzing, controlling, and modifying SECS message communication").

17. **An article of manufacture according to claim 11, in which said at least one variation step changes a member of a HCS-Tool Interface** (e.g., [0005]: "Each of the equipments reports to the host the progressing status and results of each process. The host performs functions such as supervising and managing a series of semiconductor fabricating processes based on the report", [0031]: "checking, analyzing, controlling, and modifying SECS message communication").

18. **A system for processing an integrated circuit wafer in at least one tool in a semiconductor fabrication facility, comprising: at least one fabrication tool of any compliant tool type that complies with a standard protocol to perform a process**

**in an integrated circuit manufacturing sequence performed on a wafer of integrated circuits, a data processing unit in communication with said fabrication tool and having a HCS for controlling said tool: sending commands to said tool comprising a workflow of workitems, in which each of said workitems has a status flag associated therewith said flag being one of a set of categories including at least enable and disable** (e.g., [0078]: "The operator selects one sequence name among a plurality of the sequence names and combines the SECS messages by specifying and moving the SECS messages required for the selected sequence name to the right message window by means of the drag-and-drop manner", *EN: If the message is dragged-and-dropped by the operator, then the message or workitem "flag" is "enabled"*), **and each of said workitems is in the form of a java class** (e.g., [0087]), **whereby individual ones of said workitems may be enabled or disable and new workitems may be added to operate on a tool made by any manufacturer that complies with said standard without recompiling or restarting said HCS** (e.g., [0030], [0078]).

**19. A system according to claim 18, in which said commands to said tool further comprises at least one variation step in which: said HCS alters at least one command sent to said tool, thereby making changes in one or more parameters of said command, said HCS then evaluates the result of said changes and retains changes that improve the performance of said tool** (e.g., [0005]: "Each of the equipments reports to the host the progressing status and results of each process. The host performs functions such as supervising and managing a series of

semiconductor fabricating processes based on the report", [0031]: "checking, analyzing, controlling, and modifying SECS message communication").

**20. A system according to claim 18, in which said at least one variation step is under the control of said configurable set of rules that control the gathering of information by said HCS from said tool; and said one or more parameters are members of a HCS-Tool Interface** (e.g., [0030], [0078]).

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 6, 9, 10, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Baek et al. as applied to claims 5, 8, and 11 above, and further in view of Jun US 6,178,390.

Baek et al. does not explicitly disclose that there is a range over which the HCS may vary a parameter, and that the range is controlled by a configurable set of rules.

Jun discloses a method of controlling semiconductor manufacturing equipment with a host computer comprising a configurable set of rules that control the gathering of information by the host from the equipment, whereby the range over which said HCS may vary a parameter is controlled by said set of configurable rules (e.g., col. 9 lines 37-67).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Baek et al. with Jun in order to stop the manufacturing process and alert an operator if an automatically calculated setting for the equipment falls outside of a desired specification range, as taught by Jun (e.g., col. 9 lines 48-59).

***Conclusion***

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ryan A. Jarrett whose telephone number is (571) 272-3742. The examiner can normally be reached on 10:00-6:30 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo Picard can be reached on (571) 272-3749. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

8. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Ryan A. Jarrett
Examiner
Art Unit 2125

8/26/05
RAJ

LEO PICARD
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100